

Typification and Identity of *Adiantum tetragonum* (Pteridaceae)

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ABSTRACT.—*Adiantum tetragonum* Schrad., a rare and endemic species to Brazil, is typified, described, and illustrated. This is the first report and collection of this species in 180 years.

INTRODUCTION

Adiantum is represented by ca 64 species in Brazil. Several recent studies have revealed new taxa and/or endemic species to Brazil (Prado & Palacios-Rios, 1998; Prado, 2000; Prado, 2001; Lellinger & Prado, 2001; Prado, 2003; Sundue & Prado, 2005). This paper is a contribution toward a revision of *Adiantum* in Brazil. It treats *Adiantum tetragonum* Schrad., a rare and endemic species that has not been collected or recorded in 180 years. We provide a modern description and lectotypification of this species to bring it to the attention of the botanical community.

Adiantum tetragonum Schrad., Göt. Gel. Anz. 87: 872. 1824. Lectotype (here designated): BRAZIL. Bahia: "Habitat in sylvis inter Almada et Ferradas," prov. Bahiae, s.d., *Pric. Maximilianus Neovidensis s.n.* (BR!, photos BM!, SP!). **Figs. 1 & 2.**

Plants terrestrial. Rhizomes short-creeping, scaly, the scales $1.0\text{--}2.0 \times 0.2\text{--}0.4$ mm, lanceate, castaneous, shiny, the bases truncate, the apices attenuate, filiform, the margins entire. Fronds ca. 60×30 cm, closely spaced along the rhizomes. Stipes 0.3 mm wide, ca. $\frac{1}{2}$ the length of the fronds, castaneous, lustrous, glabrous or sparsely puberulent. Axes bifurcating 2–4 times, castaneous to orange-brown, lustrous, the adaxial surfaces puberulent, the hairs 0.1 mm long, curved, light brown to hyaline. Laminae chartaceous, 3–5-pinnate, the ultimate segments $6\text{--}10 \times 2.5\text{--}4.0$ cm, essentially conform, narrowly deltate to lanceolate, stipitate, the color of the segment stipes passing onto the bases of the segments, the segment bases asymmetric, truncate to obtuse, the segment apices gradually tapered to slightly attenuate, the basal segments sometimes with a basisopic lobe, the lobes ca. 2 cm long, acute, the margins of sterile segments crenate, the margins of fertile segments shallowly lobed, the lobes truncate, each lobe bearing a single sorus; abaxial lamina surfaces glabrous; adaxial



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ADIANTUM tetragonum.

Tab: LXIII.

FIG. 1. *Adiantum tetragonum*, reproduced from Martius (1834).

lamina surfaces puberulent along the costae. Veins free, forked, with a central vein forming an excurrent costa in each segment. Sori 3–8 mm long, 6–12 along each margin of the segment, linear or slightly arcuate, the indusia brown, glabrous, the margins of the indusia entire. Spores not seen.

ADDITIONAL MATERIAL EXAMINED.—BRAZIL. **Bahia**: Caatiba; entrada para a cidade ca. 11 km de Itapetinga, rod. para Caatiba 31.2 km da BR-415, 14°59'48"S

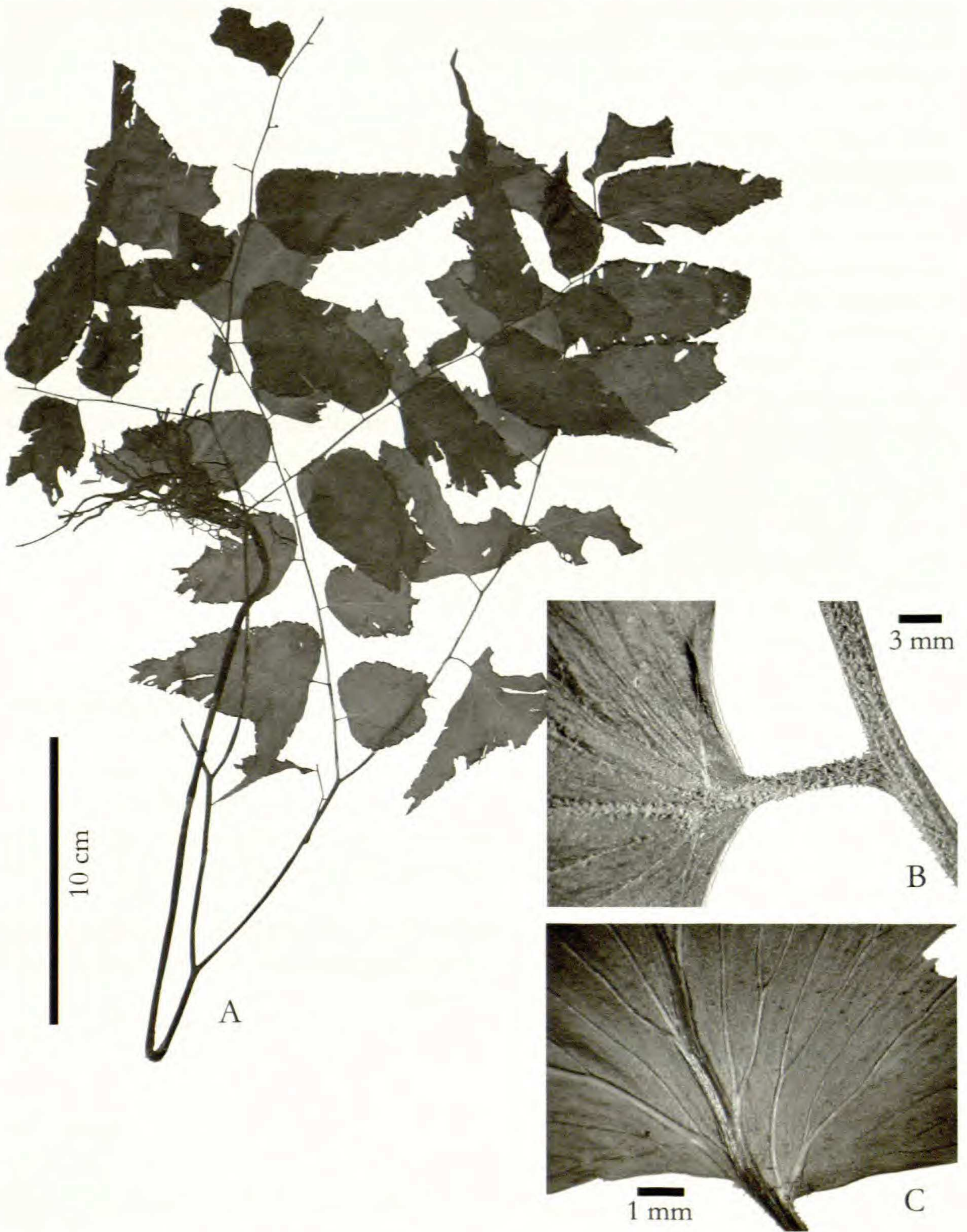


FIG. 2. *Adiantum tetragonum*. A. Part of a fertile frond. B. Adaxial segment base. C. Abaxial segment base. All based on *Jardim et al. 3153* (NY).

40°23'12" W, 11 March 2000, *J. G. Jardim et al.* 3153 (CEPEC, NY). **Minas Gerais:** "Patria Brasilia, Capitania Minas Geraes, circa Aldea dos Maxacalis, *Pohl 3263*" (BR!, photo SP!).

DISTRIBUTION.—Endemic to the dry Atlantic forests of Bahia State, and inland forests from Minas Gerais State, growing between 200 and 500 m.

Adiantum tetragonum was described by Schrader (1824) in a rather unexpected place, in the publication of a lecture that he delivered on November 22nd, 1823 at the memorial celebration of the Royal Society in Göttingen (Zimmer & Prado 1997). No type material was cited in the protologue; however, we know that all new species described by Schrader (1824) were based on material collected by Princ. Maximilianus Neovidensis in Bahia State, Brazil. Two authentic specimens (isosyntypes) of *A. tetragonum* were found at BR by the senior author. Original labels retained on these specimens confirm their authenticity. One of these two sheets, has a label of Martius' Herbarium in the lower left corner of the sheet, and is selected here as the lectotype of *Adiantum tetragonum*. This sheet contains part of a fertile frond without a rhizome. On the same sheet, in the bottom right corner, there is another label with a BR imprint that bears the determination. This specimen was illustrated by Martius (1834, t. 63) and is reproduced here (Fig. 1). Another specimen, *Pohl 3263*, was collected in Minas Gerais State, but there is no evidence that it was examined by Schrader to propose *A. tetragonum*.

After Schrader's publication, *Adiantum tetragonum* was treated as a distinct species by Martius (1834), Presl (1836), Hooker (1851), and Baker (1870). Whereas Martius (1834) presented an illustration of this species, these other authors recognized this species based solely upon the original description. Hooker (1851) commented: "No specimen has ever come under my observation, nor that of Mr. J. Smith; nor has any botanist noticed it, besides Schrader and Martius".

Until the recent collection by *J. G. Jardim et al.* was brought to our attention, *Adiantum tetragonum* was known only from the type collection. Roughly 180 years have passed since it was last collected.

Adiantum tetragonum is distinguished by its chartaceous and decomposed laminae, large lanceolate to narrowly deltate pinnules, free veins, and linear sori. *Adiantum tetragonum* is most similar to *A. mynssena* Prado, *A. abscissum* Schrad., and *A. curvatum* Kaulf. These taxa all have repeatedly bifurcating and adaxially puberulent axes, provided with 0.1–0.2 mm long hairs, the color of the stipes passing onto the segment bases, laminae that lack venuloid idioblasts, veins that are forking, free and not anastomosing, and multiple linear sori. *Adiantum abscissum* and *A. curvatum* can be distinguished from *A. tetragonum* because these taxa have scales present among the hairs along their axes.

Adiantum mynssena can be distinguished from *A. tetragonum* by the former having non-costate, dimidiate, trapeziform segments compared to the costate, lanceolate or narrowly deltate segments of *A. tetragonum*. *Adiantum adiantoides* and its close relatives discussed in Sundue and Prado (2005) also share

several of the characters that unite *A. tetragonum*, *A. mynssenae*, *A. abscissum*, and *A. curvatum*. All of these taxa have adaxially puberulent axes, provided with 0.1–0.2 mm long hairs, the color of the stipes passing onto the segment bases, laminae that lack venuloid idioblasts, and multiple linear sori per segment, but the group of *A. adiantoides* differs by having anastomosing veins.

Adiantum tetragonum could also be confused with species with similarly shaped segments, such as *A. subcordatum* Sw. or *A. polyphyllum* Willd., but those species differ by having glabrous axes, and the color of the segment stipes stopping abruptly at the segment bases.

ACKNOWLEDGMENTS

We thank the Curators of the CEPEC herbarium for the material studied at NY, and the LuEsther T. Mertz Library of the New York Botanical Garden for permission to reproduce the Martius plate. The senior author thanks CNPq for financial support for this project (Proc. number 300843/93-3).

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